

Claims

1. A method for separating substances characterized by chromatographically separating said substances with the use of 5 a packing which contains a charged (co)polymer and makes it possible to change the effective charge density on the surface of a stationary phase by a physical stimulus while fixing a mobile phase to an aqueous system.

2. The separation method as claimed in Claim 1, wherein said 10 physical stimulus is a change in temperature.

3. The separation method as claimed in Claim 2, wherein said packing is a chromatographic packing chemically modified on the surface of a carrier with a temperature-responsive polymer.

4. The separation method as claimed in Claim 3, wherein said 15 packing is a chromatographic packing chemically modified with a temperature-responsive polymer by using the radical polymerization method.

5. The separation method as claimed in Claim 3 or 4, wherein 20 said temperature-responsive polymer, with which the surface of the carrier is chemically modified, is a polyalkylacrylamide polymer or copolymer having amino, carboxyl, hydroxyl groups, etc. in the side chains or at the ends.

6. The separation method as claimed in Claim 5, wherein said polyalkylacrylamide is one selected from among poly(N- 25 isopropylacrylamide), poly(N-propylacrylamide), polydiethylacrylamide and polyacryloylpyrrolidine.

7. The separation method as claimed in any of Claims 1 to 6, 30 wherein said substances are those selected from among metal elements, drugs and biological components.

8. A method for separating substances characterized by retaining the substances in a stationary phase made of a chromatographic packing chemically modified with a polyalkylacrylamide copolymer having amino, carboxyl, hydroxyl groups, etc., then changing the hydrophilic/hydrophobic balance on the surface of the stationary phase by the temperature gradient method wherein the external temperature is changed stepwise, and passing the substances through a single mobile phase to thereby separate the same.

5 9. The separation method as claimed in Claim 8, wherein said mobile phase is an aqueous solvent. ^{p 6, line 5}

10. The separation method as claimed in Claim 8 ~~or 9~~, wherein said polyalkylacrylamide is one selected from among poly(N-isopropylacrylamide), poly(N-propylacrylamide),

15 polydiethylacrylamide and polyacryloylpiperidone.

~~a~~ 11. The separation method as claimed in any of Claims 8 to ~~10~~, wherein said substances are those selected from among metal elements, drugs and biological components.

12. A chromatographic packing which contains a charged 20 (co)polymer and makes it possible to change the effective charge density on the surface of a stationary phase by a physical stimulus.

13. The chromatographic packing as claimed in Claim 12, wherein said (co)polymer is a polyalkylacrylamide copolymer having amino, carboxyl, hydroxyl groups, etc.

25 ~~a~~ 14. The chromatographic packing as claimed in Claim 12 ~~or 13~~, wherein said polyalkylacrylamide is one selected from among poly(N-isopropylacrylamide), poly(N-propylacrylamide), polydiethylacrylamide and polyacryloylpiperidone.